EXHIBIT E

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND
(Northern Division)

BALTIMORE COUNTY BRANCH OF THE NATIONAL ASSOCIATION FOR THE ADVANCEMENT OF COLORED PEOPLE, *et al.*, Plaintiffs, v. BALTIMORE COUNTY, MARYLAND, *et al*., Defendants.	Civil Action No. 1:21-cv-03232-LKG

SUPPLEMENTAL DECLARATION OF DR. JAMES G. GIMPEL, PHD.

1. This supplemental declaration assesses the map redrawn and submitted by the Baltimore County Council (the "Council") in accordance with the February 22, 2022, Order of the United States District Court of Maryland granting a preliminary injunction directing that the Council "…create a County redistricting plan that includes either an additional majority-Black County District, or an additional County District in which Black voters otherwise have an opportunity to elect a representative of their choice." (Memorandum Opinion and Order, 22-23, *Baltimore County Branch of the NAACP v. Baltimore County, Maryland*. Civil Action No. 21-cv-03232-LKG, February 22, 2022).

2. The County's proposed redistricting map focuses on the adoption of a new councilmanic district map that would enlarge the Black and minority population of a district on

the western side of the County (District 2), adjacent to the present majority-Black district (District 4) (see Figure 1). This map is the product of the Councilmembers' considered policy choices.

3. By redrawing the district lines as described below, the proposed map creates an additional County District that would provide Black voters a meaningful opportunity to elect representatives of their choice. Specifically, District 2's would become an even stronger crossover or coalition district in which Black voters could elect their candidates of choice, including Black candidates, with crossover support from both other minority voters and White voters.

4. This new proposed map would also comply with the requirements of the Voting Rights Act and with other applicable statutory and constitutional requirements.

I. Proposed Changes.

5. An arrow on the map on the right of Figure 1 (below) indicates a highly populated area of the County that would be moved from District 4 to District 2. A small section of District 1 would also be moved to District 2 in this same area (north of Windsor Mill Road inside I-695 to Gwynn Oak Avenue).

6. Across the entire map, the proposed changes are most visibly summarized in the shaded areas of Figure 2 (below). Given the unusual geography of the County, and its division into 7 districts, significant changes to one district inevitably require changes to a number of the remaining districts. District 7, the area most remote from Districts 1 and 2 would remain, unaltered from the original plan adopted by the Council.

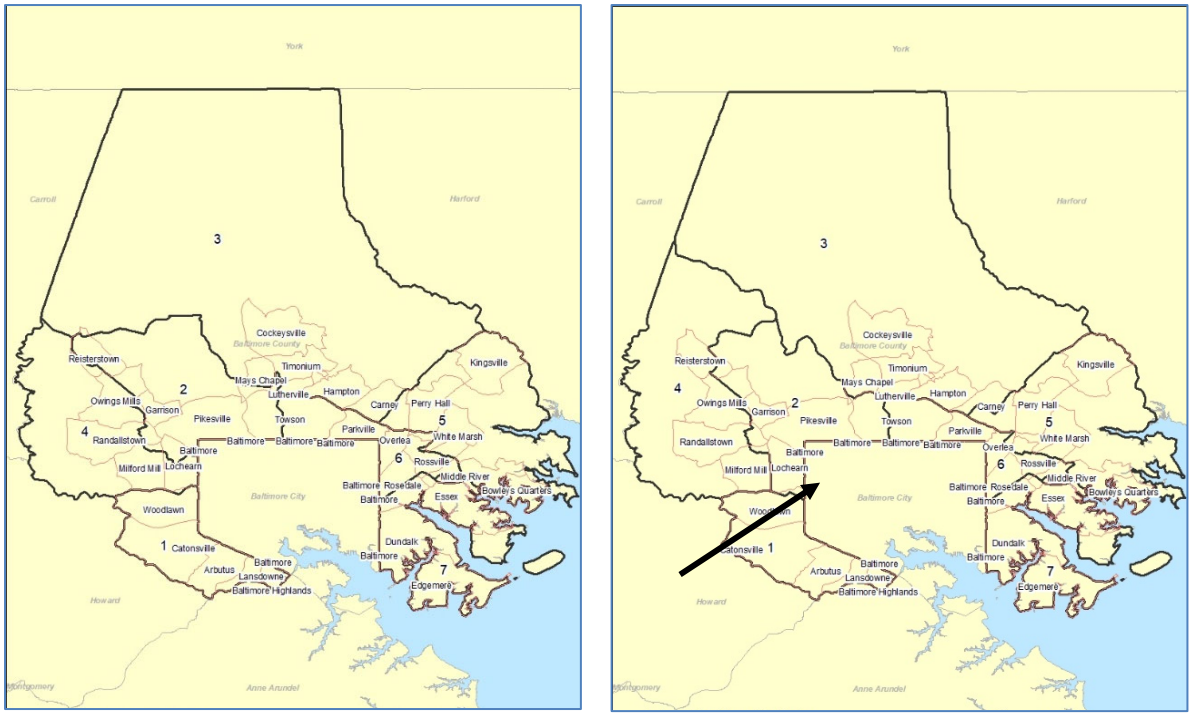

Figure 1. Original Districts and Newly Proposed Map Districts for Baltimore County, Maryland, March 2022.

7. To rebalance for population changes wrought mainly in the western area indicated in Figure 1, the proposed map would adjust the boundary of District 4, moving it northward into territory previously occupied by District 3. This change would require that District 3 then be rebalanced by cutting territory out of District 2 at two northern boundary points. Small adjustments on the east side of the County would also follow in Districts 5 and 6 following a small excision in District 3.

Figure 2. Shaded Regions Indicating Changes from Original Districts to Newly Proposed Districts for Baltimore County, Maryland, March 2022.

II. Population Equality and Deviation.

8. The results from a population equality standpoint are reported in Tables 1 and 2, below. The new proposed map would bring population deviation well below the 10 percent threshold courts usually enforce as a standard for state and local government districts[1] (*Brown v. Thompson*, 462 U.S. 835 (1983)). The maximum deviation would be 4.3% (District 6), with one

[1] National Conference of State Legislatures. (2020). 2010 Redistricting Deviation Table. https://www.ncsl.org/research/redistricting/2010-ncsl-redistricting-deviation-table.aspx, accessed March 5, 2022.

district falling just 40 residents short of ideal size (District 5). Districts 2 and 4, the loci of the concerns in this litigation, would have deviations of 3.7% and 1.9%, respectively (see Table 1).

III. Minority Population Size

9. Table 2 presents data for the size and racial composition of the voting age population of the proposed districts.

10. As expected, the most notable changes would occur in Districts 2 and 4. District 2 would now have a Black voting age population percentage at 41.2%. When non-white population shares are added across the Black, Hispanic and Asian populations, the District 2 non-white or minority voting age population would be estimated by the adjusted census figures at 50.9%. When the Multiracial, Biracial, Other race, Native American and Hawaiian/Pacific Islander population shares are then added, the non-white or minority share of the population in District 2 would be 54.2% (see Table 2). In other words, District 2 would be a solid majority-minority district.

11. In District 4, the Black voting age population percentage would be reduced to 61.1%. That Black population, when added with the Hispanic and Asian vote shares, would yield a total non-white or minority population percentage of 71.3%. When added to the Multiracial, Biracial, Other race, Native American and Hawaiian/Pacific Islander populations, the total non-white or minority percentage would be estimated at 75.2%.

12. Aside from District 4, influential non-white voting age populations (combining Black, Asian, Latino, and other non-white categories) would also be present in District 1 (45.9%), District 5 (29.8%), District 6 (41.9%) and District 7 (28.7%) (see Table 2).

13. The new map is closely in step with the contemporary standard current in state and federal redistricting law to create or expand upon "influence" or crossover or "coalition" districts.[2]

14. Specifically, the proposed redistricting map bolsters District 2 as a solid crossover district in which Black voters will enjoy support from other minority voters—with which they will form a majority-minority district—as well as from White Democratic voters to elect their candidates of choice.

15. The Supreme Court has explained that a crossover district is one in which the relevant minority voting group makes up less than a majority of the voting-age population but is large enough to elect the candidates of its choice with help from majority voters who cross over to support the minority's preferred candidate (*Bartlett v. Strickland*, 556 U.S. 1 (2009)).

16. That definition describes the proposed map's District 2. Indeed, District 2 would be a majority-minority district in which Black voters would not require White voter support to elect their candidates of choice. Yet they would receive such support as well as crossover votes from other minority groups. Additional data gathered in the last two weeks indicate that Black candidates file and run in Baltimore County's state senate and house seats on a regular basis, at non-white population percentages even below 50 percent. Two African American state delegates presently serve in the Maryland state assembly from Baltimore County districts with Black populations below 50%. Their election reflects the area's progress in race relations, and represents a promising upward trend, not an accident.

17. The County's proposal also balances the need to enhance Black voting power in District 2 against the risk of endangering Black voting power in District 4 by overly-reducing the

[2] Wasserman, David. (2021). "Is it Time to Rethink Hyper-Minority Districts?" *The Atlantic*. September 20. https://www.theatlantic.com/politics/archive/2021/09/it-time-rethink-hyper-minority-districts/620118/, accessed March 5, 2022.

majority percentage there. Should the percentage be set too low in District 4, the County would risk denying Black voters in District 4 a clear opportunity to elect their candidates of choice despite enhancing that opportunity in District 2.

18. In accord with these weighty competing considerations—the need to strengthen the crossover or coalition voting power of Black voters in District 2 while not eliminating their current voting power in District 4—and in compliance with the Court's order, the County's proposed map would solidify District 2's status as a strong crossover district, in which the Black voting age population is large enough to elect the candidate of its choice with help from other voters who also support the minority's preferred candidate (*Cooper v. Harris*, 137 S.Ct. 1455 (2017)). Indeed, Proposed District 2 would have a total minority voting age population of 54.2% and a Black voting age population set at 41.2%, compared to a white voting age population that would be reduced to 45.8% (see Table 2). The minority crossover votes alone would enable the Black voting age population to elect its candidates of choice. But white voters, particularly the many Democrats in the District, would also cross over to support Black-preferred candidates. Indeed, this kind of crossover voting occurs in parts of Maryland with even lower Black voting age populations. Black candidates have recently been elected to state assembly seats in districts with Black populations as low as 21% (District 12, Delegate Terri L. Hill) and 30% (District 8, Delegate Carl W. Jackson), and in adjacent Howard County, 26% (District 13, Delegate Frank Turner retired in 2018 after 24 years).

19. The new proposed map amplifies Black voting power and the Black voting age population's ability to elect candidates of their choice (including Black candidates) in District 2 to address the Court's finding that the Plaintiffs will likely establish a Voting Rights Act violation.

20. The proposed redistricting map would also allow Black voting influence in Districts 1 and 6 along with preserving District 4's majority-Black status and enhancing District 2's role as a crossover district. The Black population in District 6 would remain well above 25%, at 29.9%, qualifying as an influence district. Even District 1's Black voting age population percentage would be set at 27.4%, a substantial share that in combination with other minority groups would lower the white voting age percentage in that district to slightly less than a majority (49.9%) (see Table 2).

Table 1. Total Population in Baltimore County Districts from the Proposed Redistricting Map, March 2022.

Council District	Total Population	Ideal District Population	Population Deviation from Ideal	Percent Deviation from Ideal	White	Black or African American	Hispanic or Latino	Asian	Two or More Races	Other Race	Am. Indian & Alaska Native	Native Hawaiian & Other PI
1	120,492	122,382	-1,890	-1.54%	56,164	33,331	10,511	14,036	5,455	738	227	30
2	117,868	122,382	-4,514	-3.69%	51,940	48,710	7,749	4,737	3,839	704	165	24
3	120,742	122,382	-1,640	-1.34%	90,597	9,088	6,706	9,174	4,473	498	156	50
4	120,066	122,382	-2,316	-1.89%	26,606	74,844	7,763	5,543	4,346	756	174	34
5	122,422	122,382	40	0.03%	76,048	23,156	5,937	11,267	5,256	481	238	39
6	127,655	122,382	5,273	4.31%	64,845	40,164	8,901	7,473	5,319	659	255	39
7	127,428	122,382	5,046	4.12%	77,695	24,844	13,967	2,481	7,012	652	741	36
Total	**856,673**				**443,895**	**254,137**	**61,534**	**54,711**	**35,700**	**4,488**	**1,956**	**252**

Ideal Population	122,382
Max Deviation (±5%)	6,120
Max Deviation Range	116,263 to 128,501
10% Max Deviation	12,238
(difference between largest and smallest districts)	

Council District	White	Black or African American	Hispanic or Latino	Asian	Two or More Races	Other Race	Am. Indian & Alaska Native	Native Hawaiian & Other PI
1	46.61%	27.66%	8.72%	11.65%	4.53%	0.61%	0.19%	0.02%
2	44.07%	41.33%	6.57%	4.02%	3.26%	0.60%	0.14%	0.02%
3	75.03%	7.53%	5.55%	7.60%	3.70%	0.41%	0.13%	0.04%
4	22.16%	62.34%	6.47%	4.62%	3.62%	0.63%	0.14%	0.03%
5	62.12%	18.91%	4.85%	9.20%	4.29%	0.39%	0.19%	0.03%
6	50.80%	31.46%	6.97%	5.85%	4.17%	0.52%	0.20%	0.03%
7	60.97%	19.50%	10.96%	1.95%	5.50%	0.51%	0.58%	0.03%
Total	**51.82%**	**29.67%**	**7.18%**	**6.39%**	**4.17%**	**0.52%**	**0.23%**	**0.03%**

Table 2. Voting Age Population in Baltimore County Districts from the Proposed Redistricting Map, March 2022.

Council District	Total Population	Ideal District Population	Population Deviation from Ideal	Percent Deviation from Ideal	White	Black or African American	Hispanic or Latino	Asian	Two or More Races	Other Race	Am. Indian & Alaska Native	Native Hawaiian & Other PI
1	94,254	95,950	-1,696	-1.77%	47,003	25,816	6,891	10,520	3,352	474	170	28
2	92,191	95,950	-3,759	-3.92%	42,226	38,002	5,089	3,802	2,441	473	137	21
3	95,081	95,950	-869	-0.91%	73,917	6,661	4,358	7,023	2,618	341	117	46
4	93,830	95,950	-2,120	-2.21%	23,286	57,351	5,232	4,358	2,945	505	130	23
5	96,069	95,950	119	0.12%	63,762	16,245	3,803	8,569	3,131	332	196	31
6	102,122	95,950	6,172	6.43%	55,296	30,545	6,221	6,054	3,325	439	217	25
7	98,098	95,950	2,148	2.24%	64,708	17,605	8,637	1,920	4,177	409	613	29
Total	**671,645**				**370,198**	**192,225**	**40,231**	**42,246**	**21,989**	**2,973**	**1,580**	**203**

Ideal VA Population	95,950
Max Deviation (±5%)	4,798
Max Deviation Range	91,192 to 100,748

Council District	White	Black or African American	Hispanic or Latino	Asian	Two or More Races	Other Race	Am Indian & Alaska Native	Native Hawaiian & Other PI
1	49.87%	27.39%	7.31%	11.16%	3.56%	0.50%	0.18%	0.03%
2	45.80%	41.22%	5.52%	4.12%	2.65%	0.51%	0.15%	0.02%
3	77.74%	7.01%	4.58%	7.39%	2.75%	0.36%	0.12%	0.05%
4	24.82%	61.12%	5.58%	4.64%	3.14%	0.54%	0.14%	0.02%
5	66.37%	16.91%	3.96%	8.92%	3.26%	0.35%	0.20%	0.03%
6	54.15%	29.91%	6.09%	5.93%	3.26%	0.43%	0.21%	0.02%
7	65.96%	17.95%	8.80%	1.96%	4.26%	0.42%	0.62%	0.03%
Total	**55.12%**	**28.62%**	**5.99%**	**6.29%**	**3.27%**	**0.44%**	**0.24%**	**0.03%**

IV. Compliance with Traditional Redistricting Principles

21. The proposed redistricting map creates meaningful opportunity for Black voters in District 2 and across the County while also complying with traditional redistricting standards, thus reflecting the Councilmembers' use of their considered policy choices in redrawing the district lines.

22. In crafting the proposed redistricting map, the Council remained mindful of the need to preserve neighborhoods and localities. The number of split precincts would be held to just six, and the number of split census places would be reduced to 12. Catonsville and Arbutus would remain together in District 1, in contrast to the NAACP's proposed Map 1. In all cases, when jurisdictions would be divided, it would be along familiar lines, following major highways and streets that create boundaries recognizable to residents. For instance, Towson would be divided into eastern and western parcels by Charles Street (Route 139). Owings Mills would be divided by Reisterstown Road (Route 140). Randallstown would be divided into "lower" (southeast) and "upper" (northwest) neighborhoods by Winands and McDonough Roads. In all cases, the County constituted these proposed divisions by following well-defined landmarks in the built environment.

23. The County Council also continued to follow redistricting precedent in striving to maintain the continuity of representation that sustains the bonds of familiarity and trust that have formed between voters and their council members. Accordingly, core retention, or the carryover of constituents from the 2010 map to the new map would average 82 percent (see Table 3). District 2 would maintain an estimated 82 percent of its previous constituents. District 4 would maintain 84 percent of its previous constituents. The remaining districts would remain largely consistent with the retention figures they would have had under the original map.

24. Comparing the original adopted map to the new proposed map indicates where most of the change would occur. District 2 would lose about 19 percent of the constituency it originally had, while District 4 would lose about 17 percent of its population. District 3 would be altered, losing about 7 percent from the Council's original plan—its lighter population density would provide somewhat of a buffer against sweeping change. Reflecting the addition of the small sliver of District 1 that would be added to the new District 2 (indicated above), District 1's originally planned constituency would be marginally reduced. Districts 5 and 6 would be changed by similarly small degrees. District 7, in the far southeast, would remain unchanged from the original plan.

25. The compactness scores in the original map and new proposal are largely unchanged (see Table 4). Proposed Districts 4 and 2 would be slightly less compact. District 3 would be somewhat more compact.

Table 3. Core Retention Across Redistricting Plans Showing Continuity in Representation						
	2000 to 2010	2010 to 2020	2010 to Proposed Map	2020 Original to Proposed Map	2010 to NAACP 1	2010 to NAACP 5
District 1	0.999	1.000	0.985	0.985	0.564	0.949
District 2	0.938	0.988	0.810	0.810	0.749	0.548
District 3	0.888	0.988	0.955	0.930	0.788	0.828
District 4	0.950	1.000	0.832	0.832	0.548	0.595
District 5	0.765	0.510	0.563	0.976	0.521	0.542
District 6	0.713	0.556	0.582	0.973	0.720	0.420
District 7	0.904	1.000	0.998	1.000	1.000	0.924
Average	**0.880**	**0.863**	**0.818**	**0.929**	**0.699**	**0.687**
Cell entries show proportion of the residents in the district from the comparison plan (previous decade, or previous map) carried over to the new or proposed plan. Estimates use adjusted 2020 block data.						

Table 4. Compactness Tests Original Map and Proposed Map				
Districts	Original Districts		Proposed Map	
	PPTest	STest	PPTest	STest
District 1	0.46	0.68	0.48	0.69
District 2	0.42	0.65	0.37	0.61
District 3	0.54	0.74	0.58	0.76
District 4	0.35	0.59	0.33	0.57
District 5	0.14	0.38	0.14	0.37
District 6	0.29	0.54	0.27	0.52
District 7	0.07	0.26	0.07	0.26
Average	**0.32**	**0.55**	**0.32**	**0.54**
PPtest=Polsby Popper Test; STest=Schwartzberg Test. In both cases, larger numbers indicate more compact districts.				

V. Ecological Inference Analysis

26. As I testified at the Court's hearing of February 15, 2022, although ecological inference analysis is a widely used method in court cases that estimate polarized or bloc voting, its use is not methodologically sound in many cases. Like many statistical methods, this technique requires that the researcher make assumptions about the data, some of which are not justified, and do not correspond to reality.

27. First of all, it involves the use of precinct level or block level data instead of observations of individuals. So instead of individual voters casting ballots for Republicans, Democrats, Black or White candidates, ecological regression takes as its observations aggregated sets of voters, as collected in voter precincts or voter tabulation districts (VTDs). The problem is that what is true of a precinct, city block, zip code, neighborhood, or county, might not be true of an individual. Assuming that they are the same is called the "ecological fallacy." What is true of aggregates might not be true of individuals.[3]

28. In one classic study cited by Robinson,[4] the relationship between foreign birth and English literacy was studied across states. The researcher found that as the percentage of foreign-born residents increased, the literacy rate (in English) increased. But it's fallacious to conclude from this study that the foreign-born are highly literate, or more literate than the native born. The actual correlation for individuals was negative: immigrants were less literate in English than natives, on average. The ecological analysis across the aggregate units was flat wrong. But

[3] King, Gary (1997). A Solution to the Ecological Inference Problem. Princeton, NJ: Princeton University Press.
[4] Robinson W S (1950). Ecological correlations and the behavior of individuals. American Sociological Review 15: 351–57.

because immigrants tend to live in states where the natives are highly literate, the ecological data gave a totally false impression.[5]

29. Similarly, we might have observed in the Old South during Jim Crow that as Black concentration across precincts rises, turnout rates also rise.[6] It would be a mistake to conclude that this is a sure sign that Blacks voted in higher percentages than others in that era. The truth is that in locations with high black concentration throughout these states, the white voters were especially mobilized to turn out to vote. So the high turnout in areas of high Black concentration resulted precisely because the non-Black voters in those areas were highly motivated to participate, not because Black voters were voting at high rates. The ecological data told exactly *the opposite* story of what was true at the individual level. The ecological analysis was not only wrong, it gave the exact opposite impression than the facts observed in individual behavior. Using ecological regression analysis can not only be misleading, but completely wrong – as in the *opposite* of what is true. At bottom, this is because the ecological observations in the analysis do not contain enough information to accurately describe individual behavior.[7]

30. This is clearly a danger when ecological regression analysis is used to study voter polarization. In this approach, the percentage of white voters in a precinct is used to predict the percentage for a particular candidate (say, a Republican or Democrat, or in a Democratic primary a Black Democrat vs a white Democrat). But the critical assumption that ecological regression makes is that the group's voting tendency does not change across the precincts. David Freedman, a well-known UC-Berkeley statistician, referred to this as the "constancy assumption," that voting

[5] Freedman, David A. (1999). Ecological inference and the ecological fallacy. International Encyclopedia of the social & Behavioral Sciences, 6(4027-4030), 1-7.
[6] Key, Jr. V.O. (1949). Southern Politics in State and Nation. New York, NY: Alfred A. Knopf.
[7] Judge, G. G., Miller, D. J., & Cho, W. K. (2003). An information theoretic approach to ecological estimation and inference. Berkeley, CA: UC Berkeley Department of Agriculture and Resource Economics, Paper 946.

preferences within racial and ethnic groups do not systematically depend on the ethnic/racial makeup of the precinct of residence.[8] If in one precinct, the white voting age percentage is 8% and, in another precinct, the white percentage is 69%, we cannot assume that these very different sized groupings of white voters, situated in different precincts within the county, have a similar propensity to vote for the Black (or white) candidate. Making that assumption leads to great exaggerations in the extent of political polarization between blocs of voters, leading jurists to conclude that there is far greater racial polarization than exists.

31. For example, ecological inference analysis will often appear to show a greater degree of racial polarization than there actually is in general elections, i.e., in elections that pit a Democrat against a Republican. Because the majority of Republican voters are white, and the majority of Black voters tend to vote for Democratic candidates, such elections will necessarily show as racially polarized. For this reason, it is not surprising that Dr. Barreto's analysis showed the 2014 gubernatorial election between Larry Hogan and Anthony Brown and the 2018 gubernatorial election between Larry Hogan and Ben Jealous as racially polarized. In reality, when you control for party identification or party registration in the precincts, the level of polarization or the extent of the gap in racial preference will be dramatically reduced. Thus, general elections are not particularly good examples for showing racial polarization because of the contamination of party affiliation because an ecological inference analysis cannot differentiate between racial preference and partisan division. In other words, if you were to control for the partisan component, the gap between the white and the Black preferences would surely shrink.

[8] Freedman, David A. (1999). Ecological inference and the ecological fallacy. International Encyclopedia of the social & Behavioral Sciences, 6(4027-4030), 1-7; Goodman, Leo (1953). Ecological regression and the behavior of individuals. American Sociological Review 18: 663–64; Goodman, Leo (1959). Some alternatives to ecological correlation. American Journal of Sociology 64: 610–25.

32. For a variety of reasons, it may well be that the percentage voting for the Black Council candidate in the white majority area is lower than it is for those in the white minority area. Alternatively, the white voters in the white minority area may not turn out to vote in high percentages at all, whereas those in the white majority area do (or vice versa). Perhaps the white voters living in the white minority area, seeing more information about the Black candidate, will be warmer to the idea of voting for that Black candidate than those in the white majority area. The white voters living in racially integrated areas may also be more open to the idea of voting for Black candidates, as constitutional scholar Pamela Karlan has suggested.[9] It's surely mistaken to *simply assume* that the two white voter groups, residing in very different social contexts and circumstances, will vote at the same rate, and for the same candidate. That is something a researcher should want to show through empirical investigation, not assumption. And in any event, we would not want to use a methodology that makes such a big assumption, because that involves assuming something about voters that may not be true, e.g., that a bloc of voters will react the same way to a candidate on the ballot no matter which precinct they live in across a large and heterogeneous area. There are many reasons for why this assumption would not hold for Baltimore County voters, white or non-white. The sheer expanse of the County, and the diversity of voters (and socioeconomic circumstances) within it, predict otherwise.

33. As Freedman has indicated, aggregate data at the precinct level are used to gauge polarization only because they are easier to obtain than regular surveys of individual voters. But the precinct level observations do not contain sufficient information to make confident inferences about individual behavior. Researchers will continue to rely on aggregate data because it is often

[9] Karlan, P. S. (1989). Maps and Misreadings: The role of geographic compactness in racial vote dilution litigation. Harv. CR-CLL Rev., 24, 173.

the only thing they have, but the problems with these data are not going to go away. And the flaws in ecological regression analysis will continue to exaggerate the extent of polarization in voting and mislead jurists.

VI. Conclusion

33. The Council's proposed redistricting map would bolster District 2 into a strengthened crossover district in which the Black voting age population will be able, with support from other minority voters and crossover White Democratic voters, to elect candidates of choice, including Black candidates. In accomplishing this goal, the new map complies with the Court's directive to create such a district and complies with other traditional redistricting requirements, while reflecting the County Council's legislative policy choices.

Executed on March 8, 2022.

Dr. James G. Gimpel, PhD.